

METHODS AND APPARATUS FOR  
TEMPERATURE MEASUREMENT AND CONTROL  
IN ELECTROMAGNETIC COILS

ABSTRACT OF THE DISCLOSURE

A method for monitoring temperature in at least one location of an electromagnetic coil assembly having at least one electrical winding. The method includes passing a light through a non-magnetic optical fiber inserted into a sheath that is wound with the electrical winding. The sheath is wound and cast with the electromagnetic coil assembly, and the optical fiber is slidably inserted therein. The optical fiber has a core containing at least a first Bragg grating etched therein. The method further includes detecting a wavelength of light reflected from the first Bragg grating and determining a temperature of the electromagnetic coil assembly at a location of the first Bragg grating utilizing the detected wavelength of the light reflected from the first Bragg grating.